

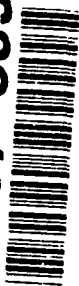
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## DEPARTMENT OF DEFENSE

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# FOOD AND NUTRITION RESEARCH AND ENGINEERING PROGRAM

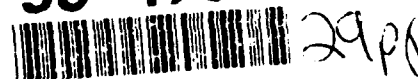
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OFFICE OF  
THE UNDER SECRETARY OF DEFENSE FOR  
RESEARCH AND ENGINEERING



RESEARCH AND  
ENGINEERING

DoD 3235.2-R

OFFICE OF THE UNDER SECRETARY OF DEFENSE

WASHINGTON D C 20301

April 27, 1984

FOREWORD

This Regulation is issued under the authority of DoD Directive 3235.2, "Department of Defense Food and Nutrition Research, Development, Testing, Evaluation and Engineering Program," April 20, 1983. It assigns responsibilities and prescribes procedures for operation and management of the program.

As specified in DoD Directive 3235.2, this Regulation replaces the Joint Services Regulation (Army Regulation 70-3, OPNAV Instruction 3900.26B, Air Force Regulation 80-52, Marine Corps Order 3900.9B, and Defense Supply Agency Regulation 3200.4) "Department of Defense Food Research, Development, Testing, and Engineering Program", August 15, 1975.

The Military Services and the Defense Logistics Agency shall cancel their respective designation of the above Joint Service Regulation by separate action.

This Regulation applies to the Office of the Secretary of Defense (OSD), the Military Departments, the Defense Logistics Agency, and the Uniformed University of the Health Sciences (hereafter referred to collectively as "DoD Components"). The term "Military Services," as used herein, refers to the Army, the Navy, the Air Force, the Marine Corps, and the Coast Guard (when operating under the Department of the Navy).

This Regulation is effective immediately, and is mandatory for use by all DoD Components. Heads of DoD Components may issue supplementary instructions only when necessary to provide for unique requirements within their Components. Copies of such instructions or recommended changes shall be forwarded to:

Director, Environmental and Life Sciences  
Office of the Deputy Under Secretary of Defense  
(Research and Advanced Technology)  
Office of the Under Secretary of Defense for  
Research and Engineering  
Room 3D129, The Pentagon  
Washington, D.C. 20301

DoD Components may obtain copies of this Regulation through their own publications channels. Other federal agencies and the public may obtain copies from the Director, U.S. Naval Publications and Forms Center, Code 301, 5801 Tabor Avenue, Philadelphia, PA 19120.

EDITH W. MARTIN  
Deputy Under Secretary of Defense  
(Research and Advanced Technology)

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REFERENCES

- (a) DoD Directive 1338.10, "Department of Defense Food Service Program," June 12, 1979
- (b) DoD Directive 3235.2, "DoD Food and Nutrition Research, Development, Testing, Evaluation, and Engineering Program," April 20, 1983
- (c) DoD 1338.10-M, "Manual for the Department of Defense Food Service Program," November 1978, authorized by DoD Directive 1338.10, June 12, 1979
- (d) DoD Instruction 7045.7, "The Planning, Programming, and Budgeting System," October 29, 1969
- (e) DoD 7110.1-M, "Budget Guidance Manual," July 1982, authorized by DoD Instruction 7110.1, October 30, 1980
- (f) DoD Instruction 5154.21, "Department of Defense Food Service Facility and Equipment Planning Board," March 12, 1971
- (g) DoD Directive 5154.12, "The Armed Forces Pest Management Board," July 23, 1979
- (h) DoD Instruction 3210.4, "DoD Coordination on Food, Agriculture, Forestry, Nutrition, and Other Designated Research with the U.S. Department of Agriculture," July 5, 1983
- (i) DoD Directive 5129.1, "Under Secretary of Defense for Research and Engineering," January 25, 1984
- (j) DoD Directive 5136.1, "Assistant Secretary of Defense (Health Affairs)," May 31, 1979

## CHAPTER 1

THE RELATIONSHIP OF RESEARCH AND ENGINEERING  
TO THE DoD FOOD SERVICE PROGRAMA. THE DoD FOOD SERVICE PROGRAM OBJECTIVE

The DoD Food Service Program (FSP) covers all food service operations of the DoD Components including the procurement of subsistence and food service equipment. The objective of the DoD FSP is to provide the highest quality and cost-effective food service to authorized military and civilian personnel (DoD Directive 1338.10, reference (a)).

B. TWO TYPES OF FOOD SERVICE OPERATIONS

There are two aspects to the FSP: day-to-day food service in established military dining facilities and operational feeding under field, emergency, or actual combat conditions. The former closely parallels civilian food service operations in high-quality cafeterias while there are no routine large-scale civilian operations that resemble the latter. There are relationships between the two types of feeding that are important to the maintenance of an overall DoD food service capability to react to DoD Component mission requirements, therefore, military food service personnel shall be trained to function in either routine or operational situations. There are also DoD situations, such as shipboard feeding and hospital patient feeding, that combine aspects of both types of feeding and require special attention to the types of equipment and foods to be used.

C. RESEARCH, DEVELOPMENT, TEST, EVALUATION, AND ENGINEERING SUPPORT

The DoD Food and Nutrition Research, Development, Test, Evaluation, and Engineering (RDTE&E) Program is established by DoD Directive 3235.2 (reference (b)) and provides the OSD and the DoD Components a science and technology base to support the formulation and execution of food service system management decisions in both the established dining facilities and the military operational environment. Food and nutrition science and technology support may be on a short term consultant basis for one of the DoD Components on a special problem (Engineering) or to provide longer term research, development, testing, and evaluation (RDTE) projects for one or more of the DoD Components. The Food and Nutrition RDTE&E Program provides both types of support on a continuous basis.

D. SUPPORT FOR ESTABLISHED OR FIXED FOOD SERVICE OPERATIONS

The Department of Defense manages the day-to-day aspects of its Components' fixed food service operations in large part through establishment of controls such as the food cost index (allowance), new food item authorizations, common procurement system, common food service equipment evaluation, and a DoD-wide standardized recipe service. A system of jointly staffed boards and committees as established by DoD 1338.10-M (reference (c)) is involved actively

in all phases of DoD food service management decision making. The DoD Food and Nutrition RDTE&E Program is a source of technical advice and assistance to DoD Component heads, commanders, and the DoD boards and committees. The program provides for RDTE&E on new foods, food service equipment, and complete food service systems.

E. SUPPORT FOR OPERATIONAL RATION DEVELOPMENT

Another aspect of DoD food service operations involves the supply of operational or special-purpose rations to meet mission requirements of DoD Components. While each DoD Component defines its own operational or special ration requirements, the DoD Food and Nutrition RDTE&E Program provides the scientific base for military ration design, that is, what is possible in terms of food preservation and packaging technology, what is acceptable from a human food acceptance standpoint, and what may be desirable nutritionally under a variety of operational situations. The DoD FSP interest in operational rations concentrates on such issues as interchangeability of rations among DoD Components, food industry capability to produce special military rations and ration components, ration and ration component shelf life, and stock rotation requirements. When a decision is made to develop a new operational ration, the necessary RDT&E support is programed and carried out in the RDT&E portion of the program.

F. SUPPORT FOR WHOLESALE SUBSISTENCE SUPPLY OPERATIONS

Wholesale supply of all subsistence for DoD Components (operational rations, ration components, and military dining facilities subsistence) is a responsibility of the Defense Logistics Agency (DLA) as Integrated Materiel Manager for Subsistence (DoD Directive 1338.10, reference (a)). The food and nutrition RDTE portion of the program provides a research base for investigation and establishment of needs for protective packaging, pest control procedures, nutritional aspects, and shelf life and rotation schedules for all subsistence items introduced into the DLA subsistence inventory and the Military Services' supply systems.

G. ENGINEERING SUPPORT FOR PROCUREMENT AND FOOD SERVICE OPERATIONS

A function that is related closely to food and nutrition research is the support for DLA procurement of subsistence and garrison-type food service equipment. Technical assistance frequently is required in interpretation of military specifications or other procurement documents that may be based on research conducted under the DoD Food and Nutrition RDT&E program. This function is not supported with RDT&E funds but instead uses operations and maintenance (O&M) funds. Funds for support to DLA and the Military Services, when needed, shall be included in the Army O&M account (Program VII). This portion of the FSP, which is referred to generically as "engineering," is discussed in Chapter 6 of this Regulation. Another aspect of engineering is support to the Military Services when necessary to maintain or improve the operations of current field and shipboard food service equipment and systems. The publication of food sanitation and nutrition standards and nutrition education material is also included in the engineering portion of this program but funded under Program VIII, which includes all medical activities.



## H. RESEARCH SUPPORT FROM OUTSIDE THE DEPARTMENT OF DEFENSE

Continental U.S. (CONUS) military food inspection and acceptance responsibilities are vested in the U.S. Department of Agriculture (USDA). This new relationship also brought an expanded focus on the relationship of the DoD food and nutrition science and technology base to similar programs in the USDA and their potential for providing answers to DoD food and nutrition problems. Procedures for obtaining food and nutrition research support from the USDA are discussed in Chapter 7.

### I. FOCUS ON INDUSTRY CAPABILITY

Military operational feeding always has presented special logistical problems and many processes developed for military feeding needs have been adopted readily by civilian industry, for example, preservation of food by the canning process originally was inspired by military need. The food industry, however, is constantly changing in response to civilian market demands. A special focus of the DoD Food and Nutrition RDTE&E Program is interpreting military food service needs, matching these needs with U.S. food industry capabilities when possible, and maintaining an adequate technology base to produce food industry-supportable solutions in the event of an emergency. It is DoD intent that the food and nutrition research program be conducted to make maximum use of the applicable scientific and technical capabilities of industry and also other government agencies with food and nutrition research or related programs (DoD Directive 3235.2, reference (b)).

### J. USING THE DOD FOOD AND NUTRITION RDTE&E PROGRAM

The DoD Food and Nutrition RDTE&E Program is conducted by the Army as the Executive Agent for the benefit of all DoD Components. This Regulation outlines procedures and guidelines to be used by DoD Components to obtain food and nutrition research and engineering services and support. It also contains program management procedures that will be followed by the Army as DoD Executive Agent to ensure a single, responsive food and nutrition research and engineering program.

## CHAPTER 2

THE STRUCTURE OF THE DoD RESEARCH, DEVELOPMENT, TEST, EVALUATION, AND  
ENGINEERING (RDTE&E) PROGRAM AND ITS RELATION TO THE DoD BUDGET PROCESSA. PLANNING AND PROGRAMING

The DoD Food and Nutrition RDTE&E Program is an integral part of the DoD budget planning and programing system (DoD Instruction 7045.7, reference (d)). This Chapter provides a short overview of that system so that users and managers may gain an appreciation of how funds for military food and nutrition research and engineering needs are justified, requested, appropriated, and apportioned. It also provides details on the program structure and contents.

B. CONGRESSIONAL APPROPRIATIONS AND DEFENSE APPORTIONMENT

All funds for DoD food and nutrition research are included in the Army's portion of the annual RDTE&E appropriation. Proposed food and nutrition research funding included in the DoD annual budget request to Congress is based on the needs of the DoD Components as submitted to the Army as DoD Executive Agent and for maintenance of the food and nutrition technology base. The Under Secretary of Defense for Research and Engineering (USDR&E) in concert with the Office of the Assistant Secretary of Defense (Comptroller) (OASD(C)), apportions funds for food and nutrition research to the Army using the annual food and nutrition research and engineering plan as a basis. Formulation of this plan is discussed in Chapter 5.

C. DoD PROGRAM AND RESEARCH CATEGORIES

The DoD programing system organizes all DoD activity into 11 department-wide programs. Food and nutrition research are included in Program VI, Research and Development. To facilitate planning, programing, budgeting, and managing activities Program VI is divided into the following five categories:

1. 6.1 - Research.
2. 6.2 - Exploratory Development.
3. 6.3 - Advanced Development.
4. 6.4 - Engineering Development.
5. 6.5 - Management and Support.

D. FOOD AND NUTRITION RESEARCH AND DEVELOPMENT CATEGORIES

Food-related research is conducted under the first four categories listed in section C., above. Nutrition-related research usually is conducted in the first three categories. A description of food and nutrition research and development for each category together with some examples of appropriate food and nutrition research for each are discussed in the following paragraphs. These descriptions, while descriptive of food and nutrition research, are consistent with the RDT&E definitions of DoD 7110.1-M (reference (e)). Current program elements are shown in Table 2-1, below, for information.

# DoD Food and Nutrition RDTE&E Program

<u>Research Category</u>	<u>Program Element/ Project Number</u>	<u>Title</u>
6.1	6101/AH52	Support of Equipment for the Individual Soldier <sup>1</sup>
6.2	62724/AH99	Joint Services Food System Technology
6.2	62777/A879	Medical Factors <sup>1</sup> Enhancing Soldier Effectiveness
6.3	63747/D610	Food Advanced Development
6.4	64713/D548	Military Subsistence Systems

<sup>1</sup>Includes other than food and nutrition research

Table 2-1

## E. BASIC RESEARCH

1. Research (6.1) in food and nutrition is scientific study and experimentation directed toward increasing knowledge and understanding in those fields of the biological, medical, behavioral-social, physical, and materials sciences related to long-term national security needs. It provides fundamental knowledge for the solution of identified military food system problems. It also furnishes, in part, the base for subsequent exploratory and advanced developments for new or improved military food systems.

2. Research in the 6.1 category is identified under broad scientific areas. Examples of 6.1 research are basic research in nutrition, food chemistry, food microbiology, and psychological factors affecting human food behavior.

## F. EXPLORATORY DEVELOPMENT

1. Exploratory development (6.2) includes efforts directed toward solving specific military food system problems that may range from fairly fundamental applied research to the design, construction, and testing of prototype food service system hardware. The dominant character of this category of research is that it is pointed toward specific military food system problem areas with a view toward developing and evaluating the feasibility and practicality of proposed solutions.

2. Technical areas identified under food and nutrition exploratory development are:

- a. Subsistence Technology, which includes:
  - (1) Food and nutrient stability.
  - (2) Food processing and preservation techniques.
  - (3) Food packaging.

- (4) Protection of food from microbiological contamination.
- (5) Protection of food from insects and rodents.
- (6) Human factors involved in military food systems design.
- b. Food service technology which is divided into:
  - (1) Field food service systems.
  - (2) Garrison or shipboard food service systems.
- c. Nutrition, which includes:
  - (1) Applications of nutrition standards to food development.
  - (2) Assessment of prototype rations.
  - (3) Performance factors related to food intake.
- d. Consumer Acceptance Technology. Assessment of consumer acceptance of military rations and food service systems.

G. ADVANCED DEVELOPMENT

1. Advanced development (6.3) includes all project work units that have moved into the development of food system hardware or components for test. The prime result of this type effort is proof-of-design concept rather than development of food service system hardware or a new ration for Military Service use. Projects or work units in this category are considered to have potential military food system applications. Management control is exercised on a Military Service or Joint Service requirement (MSR or JSR) basis. Advanced development has been divided further for management convenience into two subcategories: 6.3A, nonsystem advanced development; and 6.3B, system advanced development.

2. Nonsystem Advanced Development. Nonsystem advanced development effort addresses technological options or uncertainties. 6.3A efforts are characterized by development of food system components or subsystems, technology demonstrations, or nonmateriel technology demonstrations that have a potential application to a variety of similar generic end products rather than for application to one specific well-defined system. Examples in this subcategory are a vehicular ration heating system, a food packaging system, and the generalized use of hydroponic gardening in military food systems.

3. System Advanced Development. System advanced development (6.3B) is the design of food system hardware, subsystems, or components for test and experimentation to determine their ability to meet a specific MSR or JSR. Examples of food-related system developments in this subcategory are a field bakery, a survival ration, and freeze-dried field ration components. System advanced development is only initiated in response to an approved military requirement.

#### H. ENGINEERING DEVELOPMENT

Engineering development (6.4) includes development program or work units or tasks in which the item is being engineered for Military Service use but has not been approved for procurement or operation. Engineering development is initiated only in response to an approved military need. The examples cited for 6.3B work also would apply in the 6.4 category.

#### I. MANAGEMENT AND SUPPORT

Research category 6.5 provides for management and support activities at some of the DoD developing activities engaged in food and nutrition research.

## CHAPTER 3

## REQUIREMENTS DOCUMENTATION IN THE DoD FOOD AND NUTRITION RDTE&amp;E PROGRAM

A. REQUIREMENTS DOCUMENTATION

The bases for initiation of effort in any of the research categories described in Chapter 2 are referred to as requirements documents. This chapter discusses JSR or MSR documents, the documentation process, and the relationship of JSR or MSR documents to the DoD Food and Nutrition RDT&E Program. It also describes procedures used for documentation of requirements for the DoD Food Product and Food Packaging Evaluation, Food Service Facilities and Equipment Testing and food related aspects of the DoD Pest Management Research Programs.

B. REQUIREMENTS DOCUMENT TYPE AND CONTENTS

An approved requirements document is a formal description of a capability or materiel that is required by one of the Military Services or the DLA. In general there are two types of requirements: objective and identified.

1. An objective requirement states the need for a new or improved service capability to do something that is beyond the latest technology. An objective type requirement document generally supports efforts in either or all of the 6.1, 6.2, or 6.3A research categories which are referred to collectively as the technology base.

2. An identified requirement states the need for a new system or system component to perform a specific task. This type of requirement is used to support advanced technology development efforts in 6.3 and 6.4 research categories. An objective type requirement may well lead to the development of an identified requirement after research is completed or has progressed to a certain point in the technology base. It is possible that the same basic need could support work that progresses through all four of the research categories under the requirements of several successive supporting documents. This does not mean, however, that a particular need or development must follow a progression through all four categories. Most developments do not, however, progress directly from the technology base to standard field use without the benefit of some 6.3 or 6.4 advanced or engineering development testing.

C. MILITARY SERVICE REQUIREMENTS DOCUMENTS

Each of the Military Services has developed systems for preparation and approval of requirements documents. The DoD Executive Agent for the DoD Food and Nutrition RDT&E Program will accept these equivalent Military Service-approved documents as a basis for beginning appropriate program planning efforts under the Army RDT&E system.

#### D. PURPOSE OF MSR DOCUMENTS

1. Twofold Purpose. Formal requirements documents may state Military Service needs for RDT&E ranging from the immediate to anticipated needs 20 years hence. The purpose of a formal requirements documentation system is twofold:

a. It establishes a benchmark agreement between the user and the developer that describes the capability or materiel required in terms that do not hinder unduly consideration of scientific alternatives and development actions.

b. It ensures that the using Military Services are committed fully to a requirement and have a coordinated plan to implement or procure resulting systems or products that will be emanating from the RDT&E effort. The documentation process is complex and time consuming, but necessarily so, to ensure that available RDT&E funds are committed only to those high-priority DoD food service system needs that are firmly established and approved jointly by the Military Services. Each idea formulated must survive the formal documentation process before DoD RDT&E funds are committed to system development efforts.

2. Face-to-Face Communication of Needs. As noted above, the approved requirements document represents a benchmark agreement between the user and the developer. Direct, face-to-face communication between the user and developer is encouraged before establishment of formal documentation to ensure that the requirement is both understood and achievable through RDT&E. In this way planning and conduct of the RDT&E are addressed to accomplish a mutually agreed-upon goal. Changes indicated through progress in RDT&E or as reflected by changing Military Service needs may be incorporated in an orderly fashion as the situation dictates through a mutually agreed-upon review process. The assignment of technical liaison personnel from other DoD Components to Army development activities has been established through experience as a highly effective method for communication of requirements before commencement and for coordination during the course of RDT&E projects (also see Chapter 4).

#### E. REQUIREMENTS DOCUMENTS FOR RATIONS AND FOOD SERVICE EQUIPMENT

1. Two Sources of Foods and Equipment. The military may use foods, rations, food service equipment, and food service systems that originate from two sources: the RDT&E program or commercial suppliers. In general, field food service equipment, operational rations, and ration components are developed under the RDT&E program. Foods and food service equipment from commercial sources are used largely in well established, fixed food service facilities.

b. Modification of Commercial Food Service Equipment. The formal requirements documentation system described above is used to support funding requests and to initiate development in the RDT&E program. Evaluation of commercial food service equipment and foods may be accomplished within the RDT&E program under special requirements rules, which are described below (see section G.). Certain DoD food systems situations may require special adaptation or modification of commercial equipment, for example, food service equipment for ship board use or in missile silo crew feeding. In these special situations

the extent of the need for equipment modification usually will determine which requirements documentation method will be used. The Executive Secretary of the DoD Food and Nutrition RDTE&E Program shall assist DoD Components in choosing the requirements documentation system that is most appropriate considering the commercial item characteristics and the proposed end-item usage.

F. COMMERCIAL ITEM USE ENCOURAGED

Commercial food items and equipment shall be used, whenever possible, in DoD food service systems. The use of such commercial food and equipment is encouraged by the Department of Defense since it avoids the costly, time-consuming RDT&E process, reduces the need for introduction of military specification documents and supports the objectives of the government-wide commercial item procurement program. Some commercial items may require trial usage and observation in DoD facilities before system-wide procurement and use may be authorized. For this purpose, DoD has established the Food Product and Food Packaging Evaluation Program and Food Service Facilities and Equipment Testing Programs (see DoD 1338.10-M, reference (c)), described below.

G. THE DoD FOOD PRODUCT AND FOOD PACKAGING EVALUATION PROGRAM

1. The Armed Forces Product Evaluation Committee (AFPEC) (DoD 1338.10-M, reference (c)) is responsible for new and existing food product and packaging evaluation. This includes both commercial items offered for use in military feeding programs and new items generated from the food and nutrition technology base.

2. New food product and packaging efforts may be initiated in the technology base at the request of the AFPEC or by the developing DoD Component commander or scientific personnel. Advanced technological developments on new food and packaging developments that show military potential shall be approved by the AFPEC. The Committee approval process takes the place of MSR and JSR documents for new foods and packaging items to be used exclusively in garrison or fixed food service facilities and for the same items that are intended for use in both fixed and field feeding facilities. The need for development of new rations or ration components that are solely for operational use or for the use of a single Military Service shall be documented through the normal requirements documentation system of the using Military Services. When the AFPEC requires assistance in the evaluation of a commercial item (for example, through the collection of food acceptance data on a commercial food item at a military dining facility), RDT&E funds will not be used. Actions of this type shall be funded through the appropriate O&M (engineering) accounts.

H. THE DoD FOOD SERVICE EQUIPMENT TESTING AND EVALUATION PROGRAM

The Food Service Facility and Equipment Planning Board (FSFEPB) is responsible for requests for new food service equipment evaluation (DoD Instruction 5154.21, reference (f)). This includes both commercial items offered for use in military food service facilities and prototype food preparation equipment or new food preparation techniques generated from the food and nutrition technology base. New technical approaches in development of food service equipment or improvements to existing equipment may be initiated in the technology base at the request of the FSFEPB or by the developing DoD Component



commander or scientific personnel. Initiation of advanced technology development on such items shall be approved by the FSFEPB. The FSFEPB approval process takes the place of MSR or JSR documents for new equipment to be used in garrison or fixed food service facilities. The need for development of field food service equipment shall be documented through the normal requirements documentation system of the using Military Services. When the FSFEPB requires assistance in the evaluation of a new commercial item (for example, collection of actual usage data and experience on unmodified commercial items at a military dining facility), RDT&E funds will not be used. Activities of this type will be funded through the appropriate O&M (engineering) accounts.

I. PEST MANAGEMENT-RELATED ACTIVITIES IN THE FOOD AND NUTRITION RDTE&E PROGRAM

The Armed Forces Pest Management Board (AFPMB) is responsible for coordinating and developing DoD pest management-related research, development, and testing requirements (DoD Directive 5154.12, reference (g)). The USDA provides the Department of Defense with research support in pest management activities and normally all pest management-related research activities will be provided by USDA. Requirements for new foods, equipment, rations, and food systems received into the DoD Food and Nutrition RDT&E Program shall be reviewed by the AFPMB for pest management research implications. Recommendations for appropriate pest management research to support such food system requirements shall be included in the AFPMB's annual recommendations to the USDR&E for research on all DoD pest management activities (also see Chapter 4).

J. THE NUTRITION-RELATED ACTIVITIES IN THE FOOD AND NUTRITION RDT&E PROGRAM

The DoD Nutrition Committee (NC) is responsible for reviewing all requirements submitted to the DoD Food and Nutrition RDTE&E Program to ensure that related plans and programs include appropriate food sanitation, nutrition, and nutrition education research and engineering efforts (DoD Directive 3235.2, reference (b)). The DoD NC also shall act in an advisory capacity to the USDR&E in determining nutrition and nutrition education research requirements that may be performed appropriately by the USDA (DoD Instruction 3210.4, reference (h); also see Chapter 7).

## CHAPTER 4

## ORGANIZATION OF THE FOOD AND NUTRITION RDTE&amp;E PROGRAM

A. PURPOSE

This chapter identifies the organizational elements of the Department of Defense that have management responsibilities for the operation of the DoD Food and Nutrition RDTE&E Program. The food program boards and committees and their functions also are described briefly under their respective supervisory OSD staff elements.

B. RESPONSIBILITIES

1. The Under Secretary of Defense for Research and Engineering supervises all research and engineering activities in the Department of Defense (DoD 5129.1, reference (i)). Within the Office of the USDR&E (OUSDR&E), the Deputy Under Secretary of Defense (Research and Advanced Technology) (DUSD(R&AT)) is responsible for food and nutrition research and engineering activities. To provide for a single coordinated food and nutrition research and engineering program, the DoD Food and Nutrition Research and Engineering Board (DoD FNREB) has been established (DoD Directive 3235.2, reference (b)) under the supervision of the DUSD(R&AT). The Military Assistant for Medical and Life Sciences, Office of the DUSD(R&AT), chairs this board. The DoD FNREB integrates all food and nutrition research and engineering requirements into the proposed DoD Food and Nutrition RDTE&E Program. This Program, which is reviewed and updated annually by the DoD FNREB, is subject to approval by the DUSD(R&AT).

2. The Assistant Secretary of Defense (Health Affairs) (ASD(HA)) supervises all DoD FSP activities that relate to sanitation, nutrition education, and nutrition standards (DoD Directive 5136.1, reference (j)). To provide for joint Service coordination, the DoD NC has been established (DoD Directive 3235.2, reference (b)) under the supervision of the Deputy Assistant Secretary of Defense (Health Promotion) (DASD(HP)). The Director of Professional Services, Office of DASD(HP), chairs this committee. The DoD NC reviews all proposed DoD food and nutrition standards and provides recommendations to the ASD(HA). The DoD NC also reviews all food service and nutrition research and engineering plans and programs to ensure appropriate efforts are ongoing or planned. The DoD NC makes its research and engineering recommendations to the DoD FNREB.

3. The Assistant Secretary of Defense (Manpower, Installations, and Logistics) (ASD(MI&L)) supervises all DoD food service activities, provides recommendations for research and development projects to the USDR&E, and ensures that the output of the DoD Food and Nutrition RDTE&E Program is integrated properly into the DoD FSP (DoD Directive 1338.10, reference (a)).

a. DoD Food Planning Board (FPB). Within the Office of the ASD(MI&L)(OASD(MI&L)), the Deputy Assistant Secretary of Defense (Logistics and Material Management) (DASD(L&MM)) is responsible for the DoD FSP. The Deputy

Director, Material Management Systems Division, Office of the DASD(L&MM), chairs the DoD FPB (DoD 1338.10-M, reference (c)). The FPB may be called on to develop and coordinate FPB positions on significant food and nutrition research and development issues.

b. The Armed Forces Product Evaluation Committee (AFPEC) is one of the standing committees of the FPB. The AFPEC is responsible for evaluation and recommendations on new food products and food packaging generated through the DoD Food and Nutrition RDTE&E Program. The AFPEC also provides authorization for advanced (6.3) and engineering development (6.4) of new food products and food packaging as noted in subsection G.1., Chapter 3, of this Regulation.

c. Armed Forces Consumer Level Subsistence Appraisal Committee is another standing committee of the FPB. This Committee conducts consumer acceptability trials of food items, reviews the utility and use of food items, and ensures that products adhere to the specifications of acquisition documentation.

d. Armed Forces Recipe and Menu Service Committees. There are two other committees of the FPB that may request engineering services under the DoD Food and Nutrition RDTE&E Program. The Armed Forces Recipe Service Committee may request technical assistance under the RDT&E Program for standardization of recipes. The Armed Forces Menu Service Committee may request technical assistance on troop preferences, frequency of serving menu items, and automated menu planning.

4. The Deputy Assistant Secretary of Defense (Installations) (DASD(I)), OASD(MI&L), supervises the activities of two jointly staffed boards that have food system research responsibilities and interests, the DoD Food Service Facilities and Equipment Planning Board (FSFEPB) and the Armed Forces Pest Management Board (AFPMB).

a. The FSFEPB recommends food service facility and equipment RDT&E or engineering projects for inclusion in the FNREP. The FSFEPB also provides authorization for advanced and engineering development of new garrison food equipment (also see section H., Chapter 3, of this Regulation). The Director of Construction, Office of the DASD(I)(ODASD(I)), supervises the operations of the FSFEPB.

b. The AFPMB, under DoD Directive 5154.12 (reference (g)), coordinates and develops requirements for all pest management-related research within the Department of Defense. All food research requirements that are candidates for inclusion in the DoD Food and Nutrition RDTE&E Program are reviewed by the AFPMB for pest management research implications and recommendations are channeled through the DoD FNREB to the USDR&E (also see section I, Chapter 3, of this Regulation). The Director of Environmental Policy, ODASD(I), supervises the AFPMB.

5. The Secretary of the Army is the DoD Executive Agent for operation of the DoD Food and Nutrition RDTE&E Program (DoD Directive 3235.2, reference (b)). Consistent with this responsibility the Secretary of the Army develops and maintains an appropriate military food and nutrition technology base and the necessary capability to respond to priority advanced development requirements

and engineering support requests of the DoD Components. Also, in fulfilling the responsibility for this Program, the Secretary of the Army develops and recommends, after coordination with the Military Services food service and medical organizations, DoD nutrition standards, dietary allowances for the daily food allowance, and nutrition education programs for use by the Military Services. The Secretary of the Army provides an Executive Secretary for the DoD Food and Nutrition RDTE&E Program who coordinates the program with the developing DoD Components and the OSD staff and provides administrative support to the DoD FNREB and the DoD NC. The Executive Secretary also serves as the Secretary of the DoD FNREB. The Secretary of the Army also may appoint an Executive Agent for Nutrition for coordination of the nutrition research and engineering activities of the DoD Food and Nutrition RDTE&E Program with the DoD Components. The Executive Agent for Nutrition also may serve as the Secretary of the DoD NC.

6. The Secretaries of the Military Departments and the Director, Defense Logistics Agency, are responsible for development and validation of their respective food and nutrition RDTE&E requirements. These requirements are forwarded to the Executive Secretary of the DoD Food and Nutrition RDTE&E Program for appropriate planning and incorporation into the proposed program to be reviewed and approved by the DoD FNREB.

a. The Military Services and the DLA also provide representatives to the DoD FNREB. The Army, Navy (which represents the Marine Corps) and the Air Force provide representatives to the DoD NC.

b. The Military Services and DLA also may assign scientific and technical liaison personnel to Army RDTE&E developing activities to provide for better coordination of requirements with the scientific community and for cross-training of scientific personnel.

#### C. JOINT TECHNICAL STAFFING AND LIAISON

Joint technical staffing and liaison at Army development activities are encouraged to promote better coordination on food and nutrition research (DoD Directive 3235.2, reference (b)). The Military Departments and DLA may appoint and assign officers to Army food and nutrition development activities who shall serve as the primary means for technical coordination between the Army development activities, their respective Military Departments and the DLA. The DoD Executive Agent shall provide physical space and administration support for these technical liaison officers. Each DoD Component is responsible for selection of its representative or representatives, how they are to be assigned, and for their performance ratings. These DoD Component officers may be assigned to coordinate both the food service and nutrition portion of the program or other officers may be designated at the option of each DoD Component. Technical liaison staff representative functions include the following:

1. Effective communication to the scientific and engineering staff of their DoD Components' current and future doctrinal concepts with particular emphasis on food service system aspects.

2. Day-to-day communication and exchange of technical information, expertise, Military Service viewpoints, proposed requirements, and coordination on the execution of the approved DoD FNREP.

3. Providing recommendations and assistance to the Army developing activity in the preparation and coordination of RDTE&E requirement and developmental and technical plans for their respective DoD Components.

4. Assisting the DoD Executive Agent and Executive Secretary in the development of a proposed DoD Food and Nutrition RDTE&E Program by:

a. Reviewing all DoD Component food and nutrition requirements and making recommendations for integration into ongoing or existing requirements, when possible.

b. Providing their DoD Components' recommended priorities for requirements in advance of the DoD FNREB meeting.

c. Assisting in the arrangement of all DoD food and nutrition requirements into a proposed program for review by the DoD FNREB.

5. Assisting the Executive Secretary in obtaining Military Service coordination or positions on deferral, decrement, and reprogramming actions.

## CHAPTER 5

## PROGRAM DEVELOPMENT PROCEDURES FOR DoD FOOD AND NUTRITION RDT&amp;E

A. MILITARY FOOD AND NUTRITION RESEARCH

This shall be accomplished when necessary to develop or improve general and specialized DoD FSPs. Most of DoD food and nutrition requirements will be in response to the changing modes of warfare and to provide food service to military and other DoD personnel under conditions that are unique in the many specialized missions of the Military Departments. There are also some instances in which military food and nutrition research may be justified to assist in maintaining or promoting more cost-effective food service systems in DoD garrison-type dining facilities. There are many aspects of military food and nutrition technology that share common bases with civilian food industry needs and requirements. It is DoD intent that scientific and technical capabilities of industry, other government agencies, and the academic community shall be used to the greatest extent practicable in meeting DoD needs. The special focus of the DoD Food and Nutrition RDTE&E Program is to build on the available civilian technical base and develop within the Department of Defense the additional knowledge and technical capabilities required to solve unique military food system requirements that will not or cannot be solved by the civilian research programs above. This Chapter provides the procedures for gathering the food and nutrition requirements of DoD Components, formulation of those requirements into an approved program and integration of that program into the DoD RDT&E program planning, budgeting, and execution system.

B. ANNUAL PROGRAM PLANNING APPROVAL

The RDT&E portion of the DoD Food and Nutrition RDTE&E Program plan shall be approved on a cyclical basis. The key factor in the timing of the program cycle is the completion of an approved plan for use as support to the annual DoD budget request. The DoD Executive Agent shall be responsible for publication and dissemination to the DoD Components of an annual schedule of critical program development events. This schedule will include the latest dates for submission to the DoD Executive Agent of new RDT&E requirements and meeting dates for the DoD FNREB and the DoD NC. This annual schedule shall serve as the notification to all DoD Components and subordinate boards and committees that provide input to the DoD Food and Nutrition RDTE&E Program when their input must be submitted. The Executive Secretary shall coordinate the establishment of this schedule directly with the DoD Components and the DUSD(R&AT), OUSDR&E, before publication.

C. PROGRAM PHASES

Requirements documentation, research planning and coordination, program development and approval, budget request and approval, program execution, review and adjustment, and technology transfer are all program phases. Each of these phases can apply, in general, to each MSR or JSR in the program as well as to the total program. For each phase, the DoD Components and the

DoD Executive Agent have both primary and secondary responsibilities. The type of research being conducted (that is, long-range research or short-term advanced or engineering development) also affects these responsibilities. Each of the above phases and associated responsibilities are discussed below.

1. Requirements documentation primarily is a responsibility of the DoD Components. As discussed in Chapter 3, each of the Military Departments has its own internal system for the development, validation, and approval of RDT&E requirements. DoD boards and committees that provide requirements to the DoD Food and Nutrition RDTE&E Program are responsible for developing appropriate procedures for submission of requirements to the DoD Executive Agent. The DLA also shall provide its own documentation and approval for requirements for submission to the Executive Agent. The Executive Secretary shall assist in developing appropriate documentation procedures and formats if requested to do so.

a. Long-term requirements generally are statements of need for a new or improved capability or an objective requirement. The DoD Executive Agent is responsible for the development and maintenance of a technology base aimed at solving long-range DoD food and nutrition capability requirements. Generally, each Military Service generates and publishes a guide to its developing laboratories and agencies that describes long-range science and technology objectives by broad categories. The DoD Executive Agent shall consider food and nutrition objective requirements submitted by the DoD Components as input to all such Army long-range objectives. Those portions of such publications detailing DoD food and nutrition long-range science and technology objectives shall be circulated among the DoD Components for comments. Formal statements of need for objective requirements by DoD Components and comments of the DoD Components on published long-range science and technology objectives shall be considered in the formulation of revisions and reissuances of technology objectives.

b. Short-term requirements generally are formal statements of a need by a DoD Component to support advanced technological development efforts to produce a new food system subsystem or component (also see Chapter 3). An identified requirement by a DoD Component may grow out of research initiated in the technical base or possibly be based on research from industry, the academic community, or another government food- and nutrition-related research program. In general, advanced development efforts will not be initiated by the DoD Executive Agent without a formal approved requirements document. The DoD Executive Agent will accept, on an equal basis with Army requirements, approved equivalent requirements documents for food and nutrition RDT&E from the other DoD Components.

2. Research planning and coordination is a joint responsibility of the Executive Agent and the requesting DoD Component. The Executive Secretary shall assign the approved requirement to the developing DoD Component with the appropriate scientific resources. In some cases, requirements may call upon the services of several developing activities to meet a particular need. The responsible developing activity will prepare a development plan for each requirement or group of related requirements.

a. The development plan, when properly coordinated with the requesting DoD Components, represents an accepted approach that, when properly funded and executed, will provide the materiel or capability required by the

DoD Components. The basic elements of the development plan will describe the general technical approach of the developing DoD Component, what resources, including time, will be required, critical review and decision points, and the expected completion date when the materiel or capability will be transferred to the control of the requesting DoD Component.

b. The services of the technical liaison staff (section F., Chapter 2) are expected to be invaluable in assisting the developing DoD Component in preparation of the development plan. The draft development plan shall be provided to all other DoD Components through the technical liaison staff for possible interest in integration and consolidation of requirements. The plan also shall be provided to interested DoD boards and committees for review and comments.

c. If the developing DoD Component and the requesting DoD Component cannot agree on any issues relating to a particular development plan, the DoD Executive Agent will attempt to resolve the issue or issues with the requesting DoD Component before the regularly scheduled meeting of the DoD FNREB. Continued disagreement on a particular issue may be brought to the attention of the DUSD(R&AT), OUSDR&E, through regular communication channels for resolution or, at the option of the requesting DoD Component, brought forward for discussion at the next regularly scheduled meeting of the DoD FNREB.

3. Program development begins with the DoD Executive Agent preparing an aggregate plan for accomplishment of all food and nutrition requirements submitted by the DoD Components. Long-range objective requirements are to be addressed by work planned or ongoing in the DoD food and nutrition technology base (6.1, 6.2, and 6.3a). Technology base research may be a part of in-house technical efforts, contractual research with academic or industrial institutions, or a part of work to be accomplished by other federal agencies. Short-range requirements for materiel or capabilities are based on the total requirements for materiel or capabilities as identified in coordinated development plans (6.3b and 6.4).

a. The proposed plan shall identify funded and unfunded requirements using current funding guidance and tentative proposed priorities for requirements obtained from the DoD Components through the technical liaison staff. The plan shall include funding for the current year being executed, the budget year, and the next 5 out-years. The plans need not include detailed work units or subelements but the proposed technical program shall be presented in enough detail to provide the objectives, the work to be accomplished, and the benefits to be gained by the DoD Components. The draft proposed program plan prepared by the DoD Executive Agent shall be provided to both voting members and observers of the DoD FNREB in advance of scheduled annual meetings to provide time for DoD Components, boards, committees, and other interested federal agencies to prepare positions on the program.

b. The draft program shall include recommendations to the DoD FNREB from the developing DoD Component, the technical liaison staff and the DoD Executive Agent for deletions, consolidations, or integration of requirements.



D. MEETINGS OF THE DoD FOOD AND NUTRITION RESEARCH AND ENGINEERING BOARD

1. The DoD FNREB shall meet at least annually to provide DoD Component recommendations on the proposed program developed by the DoD Executive Agent.

2. The DoD FNREB meeting agenda shall include but will not be limited to general and special reviews of DoD food and nutrition technology base research programs being conducted by developing activities of the DoD Executive Agent, reviews of research work being conducted for the Department of Defense by other government agencies, review and formulation of recommendations by the DoD FNREB on food and nutrition issues of general interest to all DoD Components, recommendations for deletions, consolidation or integration of requirements, and priorities for accomplishment of programmed research requirements. Other issues may be added to the agenda based on recommendations by the DoD Components and DoD boards and committees. The DoD Executive Secretary and the chair of the DoD FNREB shall coordinate with the DoD Components and publish the agenda for the annual meeting. Special meetings to consider issues that require a DoD FNREB position before the annual meeting may be called by the chair.

3. Membership on the DoD FNREB is specified in DoD Directive 3235.2 (reference (b)). The Army, the Air Force, the Navy, the Marine Corps, and the DLA each shall have one vote in establishing food and nutrition research priorities. The recommendations of the DoD boards and committees shall be considered in arriving at the final recommended DoD FNREB program. Representatives of all interested boards and committees shall be invited to attend all meetings of the DoD FNREB and shall be provided the opportunity to present their views and recommendations on both ongoing food and nutrition programs and new requirements being considered for inclusion in the program.

4. Preparing for Program Approval. The DoD Executive Secretary shall prepare the final version of the DoD Food and Nutrition RDTE&E Program as voted by the DoD FNREB and supporting meeting minutes. Verbatim meeting proceedings are not necessary but minutes shall contain a record of all significant positions taken on program issues. The recommended program shall be forwarded to the DUSD(R&AT), OUSDR&E, within 30 calendar days after the meeting. Duplicate copies of the program shall be furnished to each voting member and to the chair of each DoD board and committee represented at the meeting. If a voting member nonconcurs with the program as prepared and forwarded to DUSD(R&AT), written notice of nonconcurrence and the basis shall be sent directly to the DUSD(R&AT). An information copy of any such nonconcurrence will be provided to the DoD Executive Secretary.

5. Program Approval. The DUSD(R&AT) will review the recommended DoD Food and Nutrition RDTE&E Program and forward it with appropriate planning and guidance to the Secretary of the Army for program execution. Following approval by the DUSD(R&AT), the program shall be referred to as the fiscal year (FY) (appropriate FYs) DoD Food and Nutrition RDTE&E Program. The DUSD(R&AT) is responsible for coordination of the program within the DoD Components, as appropriate, before final approval.

## CHAPTER 6

## DoD FOOD AND NUTRITION ENGINEERING

A. ENGINEERING DEFINED

Engineering is separate and distinct from research and for purposes of this program is defined by DoD Directive 3235.2 (reference (b)) as routine actions required to maintain and operate the DoD FSP, to support the food and food service equipment acquisition program, to publish food service system and nutrition standards, and to develop nutrition education programs.

B. ENGINEERING REQUIREMENT STATEMENTS OF NEED

1. The Military Services and DLA shall develop and document their separate requirements for food and engineering services. These requirements shall be forwarded to the DoD Executive Agent. If required, the Executive Secretary will assist in the precoordination of requirements and development of statements of engineering requirements.

2. The information in a statement of engineering requirement shall include the following:

- a. Subject.
- b. Statement of need or requirement and priority.
- c. When the service is required and for how long.
- d. Discussion of the operational deficiency to include problem, background information, and magnitude of problem.
- e. Where and how engineering services are needed and the purpose.
- f. Statement of the characteristics of the food system to be improved or serviced (capacity, physical characteristics, transportability, reliability, maintainability, shelf life, packaging, weight, cube, and nutritional requirements).
- g. Technical assessment of the problem.
- h. Cost assessment which shall include estimate of training or personnel, if required.
- i. Originating office and point of contact.

3. The above list may be modified to delete or add information, as applicable.

### C. REVIEW OF ENGINEERING REQUIREMENTS

1. The DoD FNREB shall review all engineering requirements (both new submissions and standing requirements) at least annually. Priorities shall be assigned in the same manner as those used for RDT&E requirements (generally by voting). Separate lists of RDT&E and engineering requirements shall be maintained.

2. Since in some cases the same facilities or personnel may be called on to provide both RDT&E and engineering requirements, the DoD Executive Agent shall advise the DoD FNREB of any limitations expected from priorities established for these two separate program areas.

### D. REQUIREMENTS OF DoD BOARDS AND COMMITTEES

Some of the DoD boards and committees responsible for certain food program areas (Chapter 3) may require engineering support that may differ from the separate needs of the Military Departments and the DLA. In these cases the boards and committees shall submit their requirements using the information in subsection B.2., above. These requirements still are subject to the regular DoD FNREB review and priority considerations process. When DoD boards or committees are known to have continuing ongoing requirements, such as the AFRSC, it is not necessary that an individual requirement document be submitted for each action required. For example, the AFRSC would submit one document estimating the total support required to revise, test, and develop recipes rather than a separate document for each revision.

## CHAPTER 7

## DoD COORDINATION WITH THE U.S. DEPARTMENT OF AGRICULTURE

A. COORDINATION POLICY

It is DoD policy to use to the maximum advantage possible the scientific and technical capabilities of other government agencies with food and nutrition research or related programs consistent with DoD Directive 3235.2 (reference (b)). The extensive food and nutrition research programs of the USDA have many areas of common or dual interest to the Department of Defense. To guide this coordination a master Memorandum of Understanding is in effect between the Department of Defense and the USDA.

B. PROCEDURES FOR COORDINATION WITH THE USDA

Procedures for coordination of food and nutrition research with the USDA are specified in DoD Instruction 3210.4 (reference (i)). Many food and nutrition requirements of the Department of Defense may be fulfilled or partially supported by ongoing or planned research in the USDA. Responsibilities for review of DoD food and nutrition RDT&E requirements for possible partial or full support by USDA also are specified in reference (i). The DUSD(R&AT), OUSDR&E, is the final approving authority on research requirements submitted to the USDA.